

REMARKS

Claim 1 is amended to recite that step c) includes chemically bonding the fibre material with the hydrophobic polymer under conditions allowing for covalent bonding between the modified fibre and the polymer to form the composite. Support for the amendment can be found, for example, at page 9 of the present specification. Claims 17 and 24 are canceled. No new matter is added. Upon entry of the Amendment, which is respectfully requested, claims 1-16 and 18-23 will be pending.

Response to Claim Rejections under 35 U.S.C. § 112

At page 5 of the Office Action, claims 17 and 24 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite.

Without admitting that this rejection is appropriate, claims 17 and 24 are canceled. Accordingly, this rejection is rendered moot.

Response to Claim Rejections under 35 U.S.C. § 103

At page 7 of the Office Action, claims 1-24 are rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over U.S. Patent No. 6,187,136 (Pedersen) in view of U.S. Publication No. 2002/0096282 (Leibler).

The present invention relates to a process for producing a composite comprising a lignocellulosic fibrous matrix, having phenolic groups, and a thermoplastic or thermosetting hydrophobic polymer. The process comprises the steps of oxidizing the phenolic groups to provide an oxidized fibre material, contacting the oxidized fibre material with a modifying agent containing at least one first functional portion, which is compatible with the oxidized fibre material, and at least one second hydrophobic portion, which is compatible with the hydrophobic

polymer, to provide a lignocellulosic fibre material having a modified surface, and chemically bonding the fibre material with the hydrophobic polymer under conditions allowing for covalent bonding between the modified fibre and the polymer to form the composite.

As discussed in the Amendment dated December 17, 2009, the presently claimed invention renders the fibres hydrophobic by attaching to them a hydrophobic component via a chemical bond using a radical mechanism either directly or via a tag which improves adhesion of the fibres with hydrophobic composite polymers. The presently claimed invention relates to covalent bonding and can be used with both untreated fibres as well as fibres treated with ferulic acid.

Leibler discloses a process for the treatment of paper consisting of the application of a cationic resin and of an aqueous dispersion of particles of a thermoplastic polymer. In Leibler, a latexin is first produced (*e.g.*, from a thermoplastic polymer) and then mixed with a cationic PAE which may increase the bonding of the latex particles to the fibres through adsorption. At [0018], Leibler discloses that the cationic resins used for implementing the invention are crosslinkable at neutral pH on the cellulose fiber. Leibler relates to physical-chemical phenomenon.

In Pederson, a phenolic group is grafted to the oxidized lignocellulosic material and can confer a negative charge allowing it to ionically bind to a strengthening agent.

A person having ordinary skill in the art would not have been motivated to combine Leibler's cationic resins (PAE) mixed with a dispersion of particles of a thermoplastic polymer with the negatively charged, modified lignocellulosic material of Pederson to arrive at the claimed invention.

Even if Leibler were to be combined with Pederson, a person having ordinary skill in the art would not arrive at the presently claimed invention. That is, if the cited references were to be combined, a person having ordinary skill in the art, would expect the ferulic acid to ionically bind to the PAE cationic resin. However, as recited in amended claim 1, the present invention requires that the modifying agent is covalently bonded to the thermoplastic or thermosetting hydrophobic polymer.

Accordingly, the present invention is not rendered obvious by the cited references, whether taken alone or in combination. Therefore, Applicants respectfully request reconsideration and withdrawal of the § 103 rejection of claims 1-16 and 18-23 based on Pederson and Leibler.

Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited.

If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,

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